

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendments, claims 1, 3-5, and 7-13 are pending in the application, with 1, 5 and 9 being the independent claims. Claims 1, 4-5, and 7-9 are sought to be amended. Claims 10-13 are sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Support for independent claims 1, 5, and 9 can be found in the Specification of the instant application. For example, pages 10-11 describe time delays that can reduce the adverse effects of fading due to atmospheric turbulence, and pages 22-37 describe atmospheric turbulence at length.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Applicant wishes to thank the Examiner for a telephone interview on September 15, 2005 between Examiner Bello and Applicant's representatives, Michael Messinger Reg. No. 37,575 and Jonathan Tuminaro. Applicant's representatives and the Examiner discussed differences between the claimed invention and the applied reference, U.S. Patent No. 6,278,537 to Miyamori. Agreement was not reached. Arguments made during the telephone interview are incorporated and expanded upon herein.

Rejections under 35 U.S.C. § 112

The Examiner has rejected claim 9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. To expedite prosecution of instant application, claim 9 has been amended. It is believed that these amendments overcome the Examiner's rejection of this claim under 35 U.S.C. § 112, second paragraph. Accordingly, Applicant requests that the Examiner reconsider and withdraw this rejection.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1, 3-5, and 7-9 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,278,537 to Miyamori (hereinafter "Miyamori"). Applicant respectfully traverses.

Miyamori is directed to a light-signal transfer system capable of transferring an infrared ray between audio equipment or video equipment. *See, e.g.*, Miyamori, column 1, lines 9-16. In particular, the light-signal transfer system is capable of reproducing signals even if the transfer passage is temporally intercepted by an object. *See, Miyamori at the Abstract.* With respect to a type of object that would intercept the infrared ray, Miyamori only indicates that it could be due to a moving human being or the like. *See, e.g.*, Miyamori, column 7, lines 50-51; column 10, lines 25-28; and column 21, lines 64-67.

Miyamori's light-signal transfer system uses a series of electronic components to manipulate digital data representations of the infrared rays. It is these digital data

manipulations that allow for the information contained in the infrared ray to be transferred even if the infrared ray is temporarily intercepted. For example, a transmitter of Miyamori's light-signal transfer system includes a delay memory, a multiplexer, an error correction circuit, and an encoding circuit. *See, e.g.*, Miyamori at the Abstract; FIG. 3 of Miyamori; and Miyamori, column 5, lines 3-25. The delay memory and the multiplexer function to section the data into predetermined time units, with some of the data being delayed by a predetermined quantity of delay equal to N units. *See, e.g.*, Miyamori, column 6, lines 49-67 through column 7, lines 1-6. The error correction circuit and encoding circuit function to impart the digital data with additional code, and to interleave the digital data into block units, before the digital data is modulated and the information contained therein transmitted to a receiver. The additional code will be used at the receiver side to correct errors in the code. *See, e.g.*, Miyamori, column 5, lines 18-25.

A receiver of Miyamori's light-signal transfer system includes a decoding circuit, an error correction circuit, a demultiplexer, and a delay memory. *See, e.g.*, FIG. 3 of Miyamori. The decoding circuit decodes and deinterleaves digital data corresponding to an infrared ray received from the transmitter. *See, e.g.*, Miyamori, column 5, lines 64-67 through column 6, lines 1-4. The error correction code uses the additional code added to the digital signal to correct an error introduced into the digital data due to the spatial transfer of the infrared signal. *See, Miyamori, column 6, lines 5-12.*

In Miyamori's light-signal transfer system, the time delay N is used to correct for instances in which the error correction circuit cannot correct an error in the digital data—*e.g.*, when the infrared ray is "temporarily intercepted by a moving human being or the

like." *See, e.g.*, Miyamori, column 7, lines 49-51. In particular, Miyamori indicates that his light-signal transfer system can correct errors due to temporary interception of the infrared ray as long as the period of interception is shorter than the time corresponding to N units. *See, e.g.*, Miyamori, column 8, lines 7-14. In other words, the time delay N is used to correct errors that are due to temporary interception of the infrared ray, not errors due to fluctuations in the air through the infrared ray travels.

As currently amended claim 1 recites a method for optical wireless communication, including the following steps:

receiving a source data signal having data;
creating a set of temporally distinguishable transmission signals, the temporally distinguishable transmission signals being temporally separated from each other, such that a first temporally distinguishable transmission signal is temporally distinguished from a second temporally distinguishable transmission signal by a time-delay;
converting the set of temporally distinguishable transmission signals to obtain a corresponding set of temporally and optically distinguishable light signals, each light signal having a modulation representation of the data from the source data signal and a respective optical characteristic; and
transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals.

Miyamori does not teach or suggest each and every feature of claim 1. For example, Miyamori does not teach or suggest "transmitting the set of temporally and optically distinguishable light signals in a single output transmission beam through the Earth's atmosphere, wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals." As mentioned above, Miyamori teaches using a time delay

in the transfer of light signals. However, the time delay taught by Miyamori is set based on a "period of interception" of a transmitted signal. *See, e.g.*, Miyamori, col. 8, lines 11-13 and 19-23. Nowhere does Miyamori teach or even suggest a time delay based on "a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals," as claim 1 recites.

Since Miyamori does not teach or suggest each and every feature of independent claim 1, this reference cannot anticipate this claim. Furthermore, since dependent claim 3 depends from claim 1 (and therefore contain each and every feature of claim 1), Miyamori does not teach or suggest each and every feature of this dependent claim. Accordingly, the Examiner's rejection of claims 1 and 3 as anticipated by Miyamori is traversed and Applicant respectfully requests that these rejections be reconsidered and withdrawn.

Claim 4 also depends from claim 1. Accordingly, claim 4 is patentable over Miyamori for at least the same reasons as claim 1, in addition to its own features. For example, as currently amended claim 4 recites, *inter alia*, the following feature: "logically evaluating each successive bit in the first temporally adjusted temporally distinguishable data signal with a corresponding successive bit in the second temporally distinguishable data signal to obtain each successive output bit in a single output data signal." Miyamori does not teach or suggest this feature. Rather, Miyamori teaches selecting one of two strings of data, which are "sectioned into predetermined time units." *See*, Miyamori, col. 6, lines 51.

Claims 5, 7-8 are system claims for practicing the methods recited in claims 1, 3-4, respectively. Hence, claims 5, 7-8 are patentable over Miyamori for at least the same reasons as set forth above with respect to claims 1, 3-4, respectively. Accordingly, the Examiner's rejection of claims 5 and 7-8 as anticipated by Miyamori is traversed and Applicant respectfully requests that these rejections be reconsidered and withdrawn.

Claim 9 as currently amended also recite, *inter alia*, "wherein a duration of the time-delay is set based on characteristics of atmospheric turbulence to reduce bit errors in the transmitted temporally and optically distinguishable light signals," as recited in claim 1. Hence, claim 9 is patentable over Miyamori for at least the same reasons as set forth above with respect to claim 1. Accordingly, the Examiner's rejection of claim 9 as anticipated by Miyamori is traversed and Applicant respectfully requests that this rejection be reconsidered and withdrawn.

New claims 12 and 13 depend from claims 1 and 5, respectively, and new claims 10 and 11 depend from claim 9. Accordingly, Applicant believes new claims 10-13 to be patentable for at least the same reasons as set forth above with respect to claims 1, 5, and 9. Furthermore, claims 11-13 recite that "the duration of the time delay is less than approximately 10 milliseconds." Miyamori does not teach or suggest this feature.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all currently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the

Christopher C. Davis
Appl. No. 10/018,957
Atty. Docket No. 1797.0360001

outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael V. Messinger
Attorney for Applicant
Registration No. 37,575

Date: 9/19/05

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

427231v1